A. OVERVIEW

This site is comprised of multiple buildings varying in construction type and in various states of repair. Most are vacant or abandoned with the exception of portions of the Dispatch Building and the Central Maintenance Shop. The buildings include:

Dispatch Building
Central Maintenance Shop
Truck Barn
Firehouse
Electric Motor Shed
Lumberjack Shed
Electric Pump House
Diesel Fire Pump House
Plywood Plant

B. CIVIL/SITE INFRASTRUCTURE

Infrastructure is inclusive of water, sewer, storm drainage and site features affecting the implementation of development on the old Champion- St.Regis Mill site. A site review has been completed and readily available data collected. The evaluation will assess the condition of the infrastructure, the infrastructure's compliance with current requirements, and its potential for reuse with minimal upgrades.

B.1. Water

The westerly portion of the 400+ acre site is served with two separate water systems; a domestic and a fire suppression system. Domestic water is provided by two connections, one on the westerly boundary near Fifth Street, which is a small diameter main, and the other a six-inch along Highway 2. The six-inch along Highway 2 serves two functions; domestic service, and supplemental fire supply. Both are metered and therefore are considered services by the City.

Domestic service provided at Fifth Street is with a piping system of lines three inches and smaller. The smallest, based on the information hand drawn on old site maps, is one inch. It is believed the mains were installed starting with the development of the mill in the early 1900's. Over the years, all or portions were replaced as needed to serve new facilities or if the materials corroded and leakage became a problem affecting use. The pipe network served the prior structures and uses but does not follow any grid pattern. A number of the prior structures have been demolished. It appears that as the structures were demolished, portions of the water distribution system were abandoned. We have not at the time of this report verified the metered usage for this line. Handwritten notes on the maps maybe indicate there are no active services on this connection.

New water distribution systems must be designed and constructed in accordance with State requirements. It has been reported that portions of the system materials are plastic, and others are old steel or galvanized pipe. Reuse without significant expansion would not trigger review as a public water system. If the site experienced a major increase in use which necessitated the expansion of the system, the existing piping does not conform to current requirements. Extension of the existing system may not be allowed until the old piping was replaced. The pipe sizes and lack of looping severely limits the potential for extension of service.

A separate connection serving the southerly portion of the site is along Highway 2. This connection is an six-inch with appropriate metering and backflow protection. The monthly bill is $873.00. This connection supplements the fire flow system and provides domestic service. As with the westerly

connection, portions of this pipe network have been abandoned. Pipe sizes vary down to 1 inch. There is no grid pattern for the network and expansion is limited due to the abundance of small diameter piping.

Reuse of either of these systems is limited due to the pipe sizes and random locations. The materials to not meet AWWD and ANSI/NSF standards.

Fire protection is supplied by a separate system. A large line shaft turbine pump is housed in the central area of the site. Supply is from a pond filled with surface flow from Libby Creek. The piping network is reported to be unlined steel varying in size from twelve-inch to eight-inch. Flows from the system have not been verified, but the pump motor size and pipe network appear adequate for the use. There is no specific data available for the pump capacities. Several concerns were noted during an onsite review. A two-horse submersible is operating continuously in the pump house to maintain pressure. Main pressure is being maintained at 75 psi. A pump curve is not readily available to determine the volume being pumped. The volume being pumped is the leakage of the system, an overall indication of the leakage in the pipe network. The eight-inch connection supplements the fire flow. We are unsure why the system required a supplemental connection. Since the connection is in place, there must have been deficiencies which had to be corrected and the connection was a cost effective option. Continued use is expensive. If the entire system were part of the City water system, each user would pay a metered rate and the City would maintain the pipe network.

There is a cost for the service and power to maintain the pump station. The pump is three phase 480 volt. In the analysis of the electrical system, a summary of the costs and problems is discussed.

Supply for the fire water system is from a pond, which is maintained by an intake from Libby Creek and open channel. The pond is not lined and leakage apparently causes an artificially high groundwater level in the area. A high groundwater level can negatively impact future reuse of the site. The intake from Libby Creek is permitted through the local Conservation District and Corps of Engineers. Bed load during spring runoff can be high, and because of the channel hydraulic grade, the bed load deposits near the intake. Every few years dredging is needed to maintain the intake. A portion of the intake channel has also been subject to regular bank erosion. Repair is needed to maintain flow to the pond. Permitting from the District, Corps, and State are needed prior to undertaking the repair.

Several existing users require maintenance of the fire system. An alternative to maintaining the fire system is extending the City of Libby system to the site for all service, domestic and fire suppression.

Existing domestic and fire suppression systems serve the site and current users. There is limited expansion potential due to the small water line sizes. Overall condition is fair but with time will deteriorate further. As the site develops, a new distribution system capable of providing both domestic and fire flows should be installed to meet the flow and reliability needs of the new users.

B.2. Stimson Sewer

A separate sewage collection and treatment system serves the site. Service is from a network of eight-inch sewer mains. Records show the locations of the manholes and mains. An inspection of several manholes indicates they are in good condition. The pipe network served the prior users and does not follow a defined grid. There appears to be one storm water connection near the plywood plant. Once this is eliminated, the amount of infiltration can be assessed. It appears the system is intake and watertight.

Treatment is provided by two aerated lagoons. Flows to the lagoons are from a small lift station located on Port Authority lands across Fifth Street. During the inspection, flow was moderate to the lift station.

The flow appeared to be the inflow from the inlets near the plywood plant. Plans are not yet available for the lagoons to assess their capacities. Aerators and piping equipment appear in good condition and operational. Inter-pond piping has not been maintained and limited work would restore the pond's interflow piping. We believe the treatment system was designed in the early 70's, when the mill work force was 12 to 1300 employees operating the mill 24 hours a day. This would be 400+ employees per shift. If national values for sewage contribution per employee are used, the lagoons have treatment capacity for approximately 13,000 gallons per day. A Montana Pollution Discharge Elimination Permit, MT0000221, has been issued for the system. Permit limits are 30 milligrams per liter biological oxygen demand and 30 milligrams per liter total suspended solids for a 30 day average. The permit has nutrient limitations based on pounds per day average load. Included in the permit is the trickling filter plant, which has been abandoned. The aeration system appears to be well maintained and in good condition. Blowers for the air for the aerators are operating full time. It does not appear the organic load is high enough to require full time operation. Time clocks should be installed to allow flexible operation based on organic loading.

The lift station serving the lagoons is a submersible pump station with two pumps and alternating controls. During the site review no apparent problems were noted. There is no available information on the pumps. The design was for the plant flows and therefore must have been adequate.

Continued use of the sewer system as a public system distinct from the City system can continue. The only drawback is the monthly testing and monitoring required by the permit. Since the system is a separate public system, an operator is required by the State with the appropriate licensing. When the flows exceed the treatment capacity, connection to the City on a main on Fifth Street can be completed by connecting the force main to the nearest manhole.

It appears there is capacity in the lagoons for treatment of significant flows. As the site develops, the flows and impacts to the treatment system can be monitored. If the sewer loading exceeds the treatment capacity as evidenced by the violation of the permit, improvements would be needed or connection to the City system.

The two lagoons and discharge to the Kootenai River meet the requirements of the State for aerated lagoons.

Old maps show the collection system as eight-inch. This is the State minimum for a public sewer. State rules also set minimum grades. There is no record of the sewer elevations, and no data on grades. If significant reuse is proposed, the manholes on the mains proposed for reuse should be opened, inspected and the mains cleaned and televised.

B.3. Storm Sewer

During the period when the site was fully developed, an extensive storm water collection system was in place to collect the storm water runoff, convey the water to a pond, and discharge the flow to the Kootenai River. Records indicate the pipe network varied from 36-inch to 18-inch. The site review indicated sections are intact. The original pipe system discharged to a pond near the plywood plant. It appears the pond has been filled with yard wastes and the flow of the storm system constricted or blocked. Both the inlet and outlet pipes were located. If development on the site requires storm drainage, the pipe flow through the obstructed area can be restored.

Flow through a 36-inch pipe depends on grade. Generally the flow is relatively high and would serve a large developed area.

B.4. Stimson Groundwater

The site is bounded by Libby Creek and the Kootenai River. A channel from Libby Creek bisects the site and flows to the storm water pond. Because of the unlined channel and pond, the groundwater is artificially high in areas near these features.

Stimson had at least one pump station to lower the groundwater below the bottom of the press pits in the plywood plant. The pump stations are not currently operating.

Groundwater levels east of the plywood plant building are three to four feet below ground level. Groundwater this close to the ground surface can affect the foundations of new structures. Building Codes require crawl spaces to be open and protected from moisture. Perimeter drains are required for structures to protect the interior spaces from excessive moisture.

Soils in the site vary from native sandy gravels, cobbly silt loams, to organic fill. We suspect much of the site was filled with log yard waste to both raise the site and also to provide a way of wasting the material. As the site is developed, consideration must be given to geotechnical investigations to determine actual field conditions.

The existing groundwater dewatering systems may be renovated to lower the ground water if the site development proposals require deep foundations or basements.

C. BUILDINGS/STRUCTURES

C.1. DISPATCH OFFICE

C.1.a. Architectural

This building was constructed in 1988 and is located at the entrance of the mill. It is a wood-framed wood, two-story structure on a crawlspace, clad with wood siding and has a low-sloped roof that is pitched to the center. Windows are primarily wood, single-paned. Doors are solid core wood. The building is approximately 22' tall.

Interiors finishes include vinyl asbestos tile (VAT) and carpet flooring, a combination of wood paneled and painted walls, and 1x1 surface mounted acoustic ceiling tiles on the 1st floor and exposed wood deck for the 2nd floor ceiling.

Grading around the building is relatively flat. There are some depressions on the south side of the building at water piping in one case and cable TV in the other that need to be filled and re-graded.

The building needs to be completely painted (siding, fascia, windows and doors).

Interior finishes are in fairly good condition, considering their age.

The building does not meet accessibility standards. However, the toilet room on the 1st floor is large enough to be modified to comply. This will require modifications to the fixtures and toilet partition arrangement. There are 2 toilet rooms on the 2nd floor. One appears to be large enough to be modified for

accessibility. The other, although smaller, may also be large enough to comply with the removal of the toilet partition. Accessibility to the first floor of this building would require a ramp to gain approximately 18" in elevation change. There is no elevator and depending on how the space is leased, there may not be an elevator. There are two exterior stairs.

Interior corridors are 47" wide on the 1st floor and 45" wide on the 2nd floor. In many cases we don't have the 18" on the latch side of doors. All door hardware is orbit-type and needs to be changed to lever-type (1st floor - 7 levers interior and 5 exterior; 2nd floor - 11 interior and 2 exterior).

Carpet in two 1st floor offices on the first floor are carpeted and should be replaced (they are about 12' x 12' each). On the 2nd floor there is one location by the drinking fountain that has water damage on the floor (4 tiles need to be replaced).

Floor tiles contain asbestos but are encapsulated with a heavy coat of wax. Abatement is not part of this report.

The roof ladder extends from one of 2 exterior stairs. It needs a safety cage approximately 8' in length. The roof is approximately 1 year old. It is a single ply manufactured by Euro-Last. Installation looks good, all flashings and boots look adequate.

At least one exterior door needs to be replaced on the north end.

C.1.b. Structural

The office building is a two story framed structure with glulams supporting a T&G roof deck. The structure is generally adequate with two significant exceptions. The first was a deficiency in the glulam roof structure pointed out during our site visit. Two of the existing glulams have visible splits in the bottom lamination, which is typically the point of highest stress. Both splits originate at knots and run side to side perpendicular across the lamination. Upon analysis, it is clear that this is a point where there is not a clear bearing path to the footings and the beams are both slightly overstressed. The wall they bear on at the second floor level does not exactly line up with the wall at the first floor. This is most likely overstressing several floor joists and causing them to deflect, and in turn allowing the glulams to become overstressed and crack. These glulams also bear on two additional glulams running perpendicular, but these are not adequately sized to support the main roof members. There are enough points of redundancy in this system that there is a very minimal chance of any kind of failure, but a better transfer of load should be established in the very near future to insure a longer life for the overall structure. This could be a fairly simple repair of installing a post under each glulam on the second floor that aligns with the wall in the first floor below. Footing locations should be verified and if the post location is not within approximately 2' of an existing post and footing, the post should be extended to a new pad in the crawl space. There are other areas of somewhat questionable load transfer below several of the other glulams, but I would suggest simply monitoring them for signs of overstress. They will exhibit significant signs of distress prior to any major issues. The second exception is the roof deck. It does not meet current criteria for load capacity for state snow loads for the area. This is an area where I believe that the material is repetitive enough and the overstress is small enough where the most realistic solution is to monitor for any future problems. If this roof were becoming significantly overstressed in an extreme snow event it would exhibit significant signs of distress including severe deflection, creaking, popping, and possible isolated failures prior to any more major event. I think the reality is there will probably never be a problem with the roof decking. I have seen examples of much more severely undersized T&G roof decks that have never shown any sign of distress, and I feel this should be of minimal concern.

C.1.c. Mechanical

First Floor:

This floor is heated via baseboard electric heaters in fair condition. This floor is also air-conditioned with seven window air conditioners (three on the south side, four on the north side). There is at least one office on this floor without air conditioning. Room-to-room transfer fans are used in a couple of instances, but in general, there is minimum ventilation on this floor. There are no provisions for introducing fresh air into this floor. Bathroom exhaust fans are original equipment (Emerson Pryne) and should be replaced.

Second Floor:

This floor is heated via baseboard electric heaters in fair condition. This floor is also air conditioned with two Carrier split-system A/C units. These units are original equipment at the end of their useful life and should be replaced. There are no provisions for introducing fresh air into this floor so any new units should have this capability. Bathroom exhaust fans are original equipment (Emerson Pryne) and should be replaced.

C.1.d. Plumbing

The building has a 2" domestic water main apparently originating from the City of Libby. Its hot water needs for the bathrooms and bar sink upstairs are met with a 50-gal electric water heater in good condition on the first floor. A hot water recirculating system is not installed. There is an existing Haws water fountain on the second floor that has reached the end of its useful life and should be replaced.

The porcelain plumbing fixtures are largely American Standard products that appear to be original equipment but are in good condition but require general cleaning. There is evidence of ferrous deposits on the fixtures indicating a heavy mineral content in the water.

C.1.e. Fire Protection System

This building is 100% fire-sprinkled and has a wet-type fire protection system served via a 3" main from the campus fire protection system.

C.1.f. Electrical

The electrical service for the Dispatch Office originates from a 100 KVA ground mounted transformer (D15) located in the transformer enclosure to the north of the building. This transformer is fed from the 2400-volt distribution system. The building is served with two 120/240 volt, single phase services. Disconnect switches for both services are located in the transformer enclosure. Service #1 feeds a 400 amp panelboard located upstairs. This panel primarily serves the loads on the upper floor. A KWH meter has recently been installed adjacent to the panel to monitor power usage. Service #2 feeds a 200 amp panelboard on the main floor. This panel is metered by a KWH meter located adjacent to the disconnect switch in the transformer enclosure. The panel primarily serves the loads on the main floor, and has two sub-feed breakers that serve panels located in the Guard Main and the Telephone Room.

Lighting in the facility consists primarily of pendant or surface mounted fluorescent fixtures with T-12 lamps and magnetic ballasts. Switching is by means of manual light switches adjacent to the entrance of each space or room. The majority of the fixtures are in fair condition, although some fixtures don't have lenses installed.

Overall, the electrical distribution system in the facility appears to be in good condition. However, the following deficiencies were noted:

- The facility does not have any illuminating exit signs or emergency egress lighting as required by the International Building Code.
- The panelboard located upstairs has 54 circuits, which is a violation of the National Electrical Code (NEC). The NEC only allows 42 circuits in a panelboard.
- The lighting fixtures are not energy efficient. Energy savings could be achieved if the existing
- A permanent plaque or directory shall be provided at each service disconnect switch and panel denoting that the building is supplied by more than one service.
- The sprinkler system should be monitored from a fire alarm system as required by NFPA if the building has more than 100 heads.

C.2. CENTRAL MAINTENANCE SHOP

C.2.a. Architectural

This building is a large, one-story warehouse. Currently there are two tenants that occupy a small portion of the total space. One tenant manufactures wood burning boilers and the other is a stonecutter whose space is referred to as the "Rock Shop". On the north end of the building is a tall area housing two large cranes.

This is primarily a wood post structure with exterior walls of painted plywood and 6" tongue and groove siding. There is a small concrete block addition to the north side (approx. 25' x 20' and approx. 18' high). The main and tallest portion of the building where the cranes are is in the northeast corner and is approximately 36' – 40' tall. The building has a low-sloped roof at varying elevations. The perimeter includes a variety of large wood service and man-doors.

There is a small area of two-story office space in this south portion of the building along with a variety of interior partitions and rooms constructed of wood framing covered with painted plywood. None of this meets current code requirements, the extent of which would depend on the type of tenant. The floor is a concrete slab. In the crane area, the concrete floor is covered with compacted dirt, oil, and the like. There are a series of rooms and alcoves off the main crane area that look like machine shops.

For the most part, grading around the building is not sloped positively away from the building.

All windows and doors are wood, single pane.

There is a series of 8 large doors needs to be replaced. They are barn-type sliding doors. This is along the north side of the building (approx. 18' x 15' high). There are also several along the east (the largest is 20'x20', others18'x 15' high, 14' x 14', 20' x 14' high, and 8'x12' high). On the south end of the building, there are two overhead doors (approx. 10' x 10') and at least four man-doors along the south.

The small concrete block addition to the north needs a new exterior door. One corner of that attachment needs to be repaired about two blocks worth. It appears the roof on this portion is hot tar and probably needs replacing. There are cracks on the northeast corner of the block portion that needs to be patched. There is a need for approximately 30' lineal feet of tuckpointing.

The roof is low-sloped asphalt at multiple levels. It is understood, though not confirmed that the roof deck is primarily concrete and metal.

To accommodate new tenants, a complete remodeling and modification would be necessary.

The concern in the crane room is abating the smell of oil. The potential use of the rooms, which are adjacent to the crane room, is questionable. The floor is a concrete slab in varying condition. In the crane area, the concrete floor is covered with compacted dirt, oil, and the like. Depending on the tenant, this may or may not be acceptable.

All but one roof ladders need safety cages, of which there are several (approx. 5).

Windows should be replaced. There are several man-doors in addition to several large service doors around the perimeter of the building - they are barn-type sliding doors. On the south end of the building, there are two overhead doors that need to be replaced (each are 10' x 10').

The perimeter tongue and groove wood siding is in poor condition, damaged or needs reattaching, and it is our opinion that is should be removed, sold for salvaged and replaced. Refurbishing the siding would be expensive. Also, there are several gaps between the siding and the foundation need to be filled and repaired. A majority of the fascia and corner trim needs to be replaced.

The area around the building, especially along the south side, should be re-graded, as it tends to slope towards the building.

The roof is built-up asphalt and needs to be replaced. It has seen its useful life. When this is replaced, all curb supports should be removed. All the roofs on the central maintenance building need to be removed and replaced. It is our understanding that a portion of this roof will be removed because it contains hazardous material.

C.2.b. Structural

This is the second largest structure on the site. It is almost totally an older timber structure with at least three distinct areas of construction – the high bay heavy equipment shop, the low roof area, and the high bay carrier building where the rock shop now resides. There is also another lower crane bay that was a later modification to an original low roof area. Each area has a different roof structure and each was analyzed for gravity loading, and in the case of the high crane bay a limited lateral analysis was performed as well. The owner indicated that the high crane bay area has a concrete topping applied to the roof. For purposes of analysis, this was looked at as 3" of concrete, which adds approximately 35 pounds per square foot of dead load. For purposes of this analysis, no concrete was assumed for any of the other roof areas. The additional dead load from the concrete would certainly make any issues with the structure more severe and possibly cause additional issues from those noted below.

The low roof area makes up the biggest square footage area of this structure. The roof is comprised of a tongue and groove deck, 6x12 purlins at 6' O.C. spanning 20', 12x18 beams spanning 24'from column to column and supporting the purlins, and 12x12 heavy timber columns. Deck thickness and layout could not be confirmed, but from other existing drawings is assumed to be 2x T&G which has adequate capacity for full snow loads. No visible sags or distressed areas were noted. The 6x12 purlins are significantly undersized for snow loads on an insulated roof. 12x18 beams are also significantly undersized. 12x12 columns are generally adequate for roof loads. Connections are generally adequate. Lateral stability is not adequate, but could be made so fairly inexpensively with the addition of walls or bracing. Upgrading the primary roof supports could be cost prohibitive. No immediate areas of failure were noted during our

inspection. Many of the beams and columns were heavily checked, but this is more likely from using green wood in the original construction, rather than from structural overloading. It may be that like the plywood plant, a relatively uninsulated heated structure kept significant snow from accumulating. As the building is currently, it may be unheated or insulated for future use, which would allow greater snow accumulation. This may cause an overloading and failure condition.

The high crane bay makes up the second biggest area of the Central Maintenance facility. The structure is parallel chord trusses supported on 12x12 columns at 20' O.C. A separate set of columns supports a wood crane rail structure within this envelope. The side wall columns are bolted together with blocking. The upper roof is supported with 6x12 purlins aligned with the panel points of the trusses. The owner has indicated that a concrete topping was poured on the deck above. During our walk through, significant vertical splitting was noted in the side wall columns supporting the high roof trusses. The repetitive pattern did not indicate a random checking, but rather a stress induced splitting. Bottom chords of trusses also had longitudinal splits. Analysis reveals a similar set of issues compared to the low roof in this area. The roof purlins do not have adequate strength for design snow loads. While removal of the concrete will increase the ability of the roof to handle snow loads, the purlins still do not have an adequate capacity for full design snow load. The trusses themselves are marginally adequate. In the current configuration, even with the removal of concrete there are several areas of extreme concern. The most apparent is the bottom chord tension splice. The capacity of this splice is extremely inadequate for design loads. Also severely undersized are several of the rod tension connections.

This area was also reviewed for lateral capacity. In the long axis of the bay, there is adequate capacity in the side walls of the building for shear loads imposed by a wind or seismic event. In the short axis of the bay, there is no lateral bracing other than the rigid frame action of the trusses working with the building columns. The splitting of the vertical columns is somewhat indicative of repetitive overloading. A model of the bays with lateral loads included shows the columns to be extremely over-stressed in combined bending and axial load. The overall conclusion from this model is that a lateral event could potentially collapse this portion of the building. The building is fairly protected from wind loads, but a seismic event particularly with snow on the roof could be disastrous. The fact that the columns do show signs of previous overloading reinforce this as well.

Due to the fact that the building is unstable for gravity and lateral loads without additional loading, additional loads imposed by the bridge cranes were not included in the analysis. Increased lateral loading due to these cranes would only cause greater issues. The crane rails themselves appeared to be in fair to moderate shape.

The third area analyzed was the high bay carrier building which currently houses the rock work shop. This area is comprised of timber and steel trusses spanning 66' on 20' centers. The roof above is supported by what appear to be 3x12s @ 24" o.c. I could not determine whether this roof had a concrete topping on it. I analyzed the structure without this additional load. Several members were marginal, but the overall trusses were not severely undersized. The only area of immediate concern is the tension splice in the bottom chord. This is severely undersized and is a point that could cause a sudden and complete failure. It may be possible to complete some fairly minor upgrades to these trusses to bring them into a safe state. The overall building should be stable laterally and could be upgraded as siding is replaced and new sheathing is installed.

The final area analyzed was the 8 ton crane bay, currently housing the boiler operation, which was modified to its present configuration in 1966. This area was analyzed from existing drawings of the area found in the plywood plant. The roof structure is timber purlins, supported on steel beams, attached to 12x12 timber columns. The crane rails are supported on glulam beams attached with brackets to the

timber columns. Analysis of the roof structure shows the timber purlins to be significantly undersized. The steel beams are adequate for loads if there is no concrete topping in this area (drawings do not indicate any). Timber columns are marginal for full roof loads and crane loads. As with all of the low roof areas, the lateral capcity is questionable, but could be upgraded fairly easily. The crane rail glulams do not have adequate capacity for the full crane load, but should be able to support a lower rating on the crane. Connections of the crane rails to the columns are significantly undersized to utilize the full crane load and would require extensive upgrading.

C.2.c. Mechanical

This building used to be heated via a campus steam distribution system that ceased operation after a fire in the 1990's. Since then, the majority of the building has apparently not been heated. There is little of the existing HVAC infrastructure inside the building that is salvageable. The exception to this is the office areas which have electric baseboard heaters and appear to be tempered adequately. The office areas also are served by two antiquated Carrier blowers with water-cooled compressors for air conditioning purposes that should be replaced.

Between the main garage and the addition, there are several propeller fans that appear to ventilate the garage into the addition area. This is improper ventilation design, and if the building is renovated for a new tenant, additional ventilation will have to be added to serve the main garage.

In the Lab Room, there is an existing hood system served by a rooftop exhaust fan. This equipment is in poor condition. This room is heated by an electric unit heater.

C.2.d. Plumbing

There is domestic cold water serving this building for the bathrooms and sinks apparently originating from the City of Libby.

C.2.e. Fire Protection System

This building is 100% fire sprinkled with a dry-type system via four valve huts on the exterior of the building (typically 6" mains but one 8"). One of the huts also serves the adjacent shed with a 5" main. The water source for all huts is the campus fire protection system.

C.2.f. Electrical

The Central Maintenance Shop is fed by both a 480 volt service and a 120/240 volt service. The electrical service for the 480 volt system originates from a bank of (3) 167 KVA ground mounted transformers (D9, D10, D11), and the 120/240 volt system originates from a 100 KVA ground mounted transformer (D14). These transformers are located in the transformer enclosure to the south of the building. These transformers are fed from the 2400 volt distribution system.

The 480 volt service terminates in a motor control center (MCC) located within the building. The MCC consists of a 600 amp main circuit breaker section, a KWH meter section, and four distribution sections. The distribution sections serve multiple panels and equipment throughout the building.

The 120/240 volt service terminates in a 400 amp service disconnect switch located within the building. This service disconnect serves multiple panels and equipment throughout the building.

Lighting in the facility consists primarily of HID high bay fixtures and fluorescent fixtures with T-12 lamps and magnetic ballasts. The majority of the fixtures are in poor condition.

Overall, the electrical distribution system in the facility appears to be in poor condition. A complete upgrade of the electrical distribution system should be considered. The following deficiencies were noted:

- The facility does not have illuminating exit signs or emergency egress lighting meeting the requirements of the International Building Code.
- The lighting fixtures are in poor condition, and should be replaced.
- The sprinkler system should be monitored from a fire alarm system as required by NFPA if the building has more than 100 heads.
- The 120/240 volt system is not monitored for energy consumption. In addition, if multiple tenants are located in this building, energy consumption on both the 480 volt and 120/240 systems will be very difficult to monitor.
- The NEC required working clearance in front of the MCC and multiple branch circuit panels is not provided for.
- The MCC is missing covers in two sections.

C.3. TRUCK BARN

C.3.a. Architectural

This building is primarily a wood-framed building with 24" lapped plywood siding. There are small portions of tongue and groove horizontal wood siding. Large door openings comprise the south façade that are covered with canvas roll-up doors. The eastern portion of the floor is a concrete slab with intermediate raised curbs creating shallow contained areas. The western portion of the floor is gravel. There is small concrete block building 9" from the east side of the building, 12" x 12" for propane storage.

Windows occur on the north and are wood frame with single pane glass. Grading around the building is essentially flat and in some cases, sloping towards the building, especially on the north side. This building was originally used for vehicle storage and the handling of PCB.

It's ideal use for vehicle storage, however, the presence of PCB's may preclude it viable reuse at all.

Windows, doors, roof and fascias need to be replaced.

The area around the building needs to be re-graded to provide positive drainage away from the building, especially on the north side. Trees growing up around the north and east sides need to be removed. Roof ladder on the east side needs a safety cage and all ladders need to be re-secured.

C.3.b. Structural

This is an open faced structure adjacent to the Central Maintenance building. The roof structure is 2x12s at 24" O.C. spanning between built up beams of 5-2x12s. Columns are 12x12 wood and there are knee braces in both directions. Roof structure is marginally adequate for design snow loads. Building appears to be in adequate condition and is still serviceable for storage (non-life safety) applications.

C.3.c. Mechanical

There is no HVAC system in this building.

C.3.d. Plumbing
There are limited plumbing systems in this building, including a defunct hot water heater. There are no floor drains in the garage area.

C.3.e. Fire Protection System
This building is 100% fire-sprinkled via a dry-type system served from a 6" main. However, the air compressor appears to be missing.

C.3.f. Electrical
This building is currently without power. At one time, there was an overhead feed from a utility pole on the north side of the building, but the transformer(s) and conductors have been removed. The distribution equipment within the barn has remained. If the electrical service to the building is ever re-installed, the disconnect switch and transformer located on the wooden structure above one of the truck bays will need to be relocated to an accessible location.

C.4. FIREHOUSE

C.4.a. Architectural
This two-story structure is primarily a painted wood structure with a west wall of concrete block. There is a one-story lean-to addition to the south. Doors are painted wood and windows are wood frame with single-pane glass. The upper roof is low-slope asphalt and the lower roof is a low-slope rolled roofing.

The interior is primarily painted concrete slab with exception of 12"x12" vinyl asbestos tile (VAT) in the front office and 9"x9" VAT in the toilet room. The office has a tall ceiling with stained wood paneling on the walls. The ceiling is like a pressboard with high-gloss paint. The second floor has a wood floor that was covered with carpet, which had been removed and was being sanded during our visit. There is no fire separation between the garage portion where the trucks are stored and the office bathroom and work area.

The exterior is generally in good condition, however, it should be repainted, especially the doors and windows. Condition of doors and windows are good on the north façade, but should be replaced on the south façade. Fascia on the south lean-to and at the second floor needs to be replaced.

Corner trim missing on the northeast corner of the building, about a total of 15 lineal feet. The glass in the man-door on the lean-to addition replaced (12" x 24" single pane).

There are two roof ladders that need safety cages.

The CMU wall on the west has not parapet cap and needs to be installed (approx. 40 l.f.) The block wall appears to be hollow. There are about six holes in this wall ranging in size from 6" to 2" in diameter. These need to be patched (birds and insects were seen coming and going). A portion of this wall appears to have been a furred interior wall because the mortar joints are very rough. These joints need to be cleaned and the voids filled.

The roof on both levels should be torn off and replaced. When this is done, the roof sheathing should also be examined, as it appears to be delaminating in some areas. All flashings should be replaced as well. The vinyl section of gutter over the second floor back door and should be replaced at the time the roof is redone and the entire length should be guttered at both levels. There is a roof drain on the upper level that is not needed. This should be capped off and roofed over.

Grading around the building is generally flat and should be improved along the west side. On the southeast corner by the door of the lean-to and at the northeast door of the main firehouse, stoops should be installed. There is a variety of old, deteriorating fire hoses along the west side that should be disposed of.

Interior VAT should be verified and abated if needed. The bathroom is not accessible and is too small to be modified, so a major renovation is needed to meet current standards.

The second floor conference room requires two approved exits. Currently the second exit is above the lean-to roof, this is not approved and needs to be changed. The ladder to the upper roof needs a safety cage. There is no fire separation between the garage portions where the trucks are stored and the office bathroom and work area. It is a solid core wood door, no rating and the wall appears to be a 2 x 4 framed wall with pressboard on either side. This needs to be improved to meet code.

C.4.b. Structural

This is a two story structure with a one story bay covering the fire equipment to the rear. The majority of the structure is not accessible. Areas of concern noted during our inspection were an extremely soft area of roof over the one story area and the existing CMU wall on one side of the building. The roof joists are generally adequate over the one story bay. The roofing appears to have failed in several areas, so I would assume that the water has rotted the sheathing, causing the extremely soft areas. The CMU wall is missing a large number of its cap blocks. Inspection of the cells reveals no grouting or reinforcing. Both problems could be repaired if the building is kept in service. No other major structural issues were noted.

C.4.c. Mechanical

First Floor:

The office area is heated via electric baseboard heaters. The Engine Room is heated via two Cadet electric unit heaters with unit-mounted thermostats. The Lobby area is heated via a Cadet electric unit heater.

Second Floor:

This space is air-conditioned and heated by an antiquated Carrier forced-air system with an electric heating coil and water-cooled condenser connected to a Dayton condensing unit outside. However, the Carrier unit was dismantled at time of inspection. The unit is at the end of its useful life and should be replaced with a new, conventional split system with direct-expansion cooling. The air distribution system is a ducted supply system with an open ceiling plenum for return. If the ductwork is to be re-used on this floor, it should be professionally cleaned.

C.4.d. Plumbing

Domestic water heating is accomplished for the one bathroom and second floor kitchen sink with a 10-gal electric water heater. There are no floor drains in the garage area. There is an existing Westinghouse water cooler in the garage area but it is defunct. There are a couple of rain water leaders on the exterior of the building that are neither insulated nor heat-taped, but they have apparently not had freezing problems over the years.

C.4.e. Fire Protection System

This building is 100% fire-sprinkled via a dry-type system served from a 6" main from the campus fire protection system. However, it appears that air compressors for other purposes such as auto mechanics are connected to the same system which should be isolated by today's codes. Also, the exterior soffits

which are all greater than 3-feet wide are sprinkled with the exception of one side of the building; this soffit should be sprinkled as well if the building is renovated to current codes.

C.4.f. Electrical

The electrical service for the fire barn originates at a 1-phase, 100 KVA, pole mounted transformer that is fed from the 2400 volt distribution system. This transformer feeds a 200 amp, 240/120 volt meter panel.

Branch circuits in the facility are fed from (2) 100 amp, 240/120 volt, 1-phase, load centers. Both of these panels are fed from a single 100 amp feeder that originates in the meter panel located at the transformer pole. Branch circuit wiring consists of copper conductors concealed in conduit. Energy consumption is monitored from KWH meter.

Lighting in this facility consists of a combination of incandescent and fluorescent fixtures. The fluorescent fixtures have T12 lamps and magnetic ballasts.

Overall, the electrical in this facility appears to be in fair condition. However, the following deficiencies were noted:

- The 100 amp electrical service feeding this facility appears to meet the needs of the current use of the facility (storage). However, this service will most likely need to be upsized if the facility is utilized for something other than storage.
- The facility does not have any illuminated exit signs or emergency egress lighting as required by the International Building Code.
- None of the circuit breakers in the meter panel have labels indicating the loads they service.
- The working clearance in front of the electrical load centers are blocked by the fire sprinkler riser pipe and shelving units. The National Electrical Code requires 3 feet of clearance in front of any electrical panel or load center. .
- The lighting fixtures are very energy in-efficient. Energy savings could be achieved if the existing lighting was retrofitted with T-8 fluorescent lamps with electronic ballasts.

C.5. ELECTRICAL MOTOR SHED

C.5.a. Architectural

This one-story structure is primarily wood-framed with T-111, stained siding and a sloped metal roof and slab on grade. There is a storage mezzanine accessed by an exterior covered metal stair on the north side. Treads are galvanized, textured and open. The roof is a green metal, sloped roof.

Inside is unfinished, uninsulated, and no inside wall finish. Roof structure is open trusses. There is a steel super structure for an overhead crane to handle the electric motors.

Overall condition is good. Stain on the north side is holding up pretty well, but on the west, south, and east needs to be re-stained. Fascias need to be painted as well as soffits. Fascia on the cover and the stair risers and supports should be painted.

Man-door on the west side needs to be replaced. The overhead door is in marginal condition. It is approximately 12' wide x 16' tall.

The area around the building needs to be re-graded to provide positive drainage away from the building. On the south, there is a road, which is about 6" above the top of foundation, and the drainage swale needs to be re-graded so that the drainage comes both west and east around the building. Grading on the west and north are good. East needs to be re-graded. Need at the north man door for a stoop and for a door.

There is an exterior covered stair that takes you to a mezzanine level and is in fair shape.

One section of the siding just south of the overhead door needs to be reattached and repaired – 1' x 4' section. The roof is a green metal roof in fair condition.

Future use questionable, but this is one of the better structures on the site.

C.5.b. Structural
This is a two story primarily wood framed structure. The roof is press plate trusses and the second floor is 2x6s at 16" o.c. supported on small 6" wide flange beams. The press plate roof structure appeared to be in good shape except for one truss with a severely failed web member. This did not to be an overload issue, but rather a piece of wood that split and curled as it dried. The second floor was analyzed and found to have a minimal load capacity. The 2x6 floor structure will allow approximately 35 pounds per square foot of live load, which does not accommodate most basic loadings except light storage. The steel beams supporting it are also limited in their load capacity. The building has adequate lateral capacity.

C.5.c. Mechanical
There is no HVAC system in this building.

C.5.d. Plumbing
There are no plumbing systems in this building. There are no floor drains in the garage area.

C.5.e. Fire Protection System
There is a 6" fire main originating from the campus fire protection system serving this building via a dry-type fire sprinkling system pressurized by a ¼-hp air compressor. This apparatus is in an exterior hut that is unheated. The fire protection system serves the main floor as well as the upstairs storage area for 100% coverage.

C.5.f. Electrical
The electrical service for the Electric Motor Shop originates from transformer B5 located on a pole mounted transformer platform to the north of the building. This transformer is fed from the 2400-volt distribution system. This transformer feeds a 100 amp, 120/240 volt, 1-phase load center within the building. The load center has a 100A/2P main circuit breaker and 8 branch circuit breakers. The load center is in good condition, but has no space to add additional breakers if required. Energy consumption for this building is not monitored.

At the time of the assessment, transformer B5 was not operational, so the building is currently without power.

Lighting in the facility consists of 8' fluorescent industrial strip fixtures with T-12 lamps and magnetic ballasts. These fixtures appear to be in good condition.

Overall, the electrical distribution system in the facility appears to be in good condition. However, the following deficiencies were noted:

- Transformer B5 is not operational.
- The lighting fixtures are not energy efficient. Energy savings could be achieved if the existing lighting was retrofitted with T-8 fluorescent lamps and electronic ballasts.
- The building is not monitored for energy consumption.

C.6. LUMBERJACK SHED

C.6.a. Architectural

This tall storage structure is an open pole barn enclosed partially with plywood siding on the north, west and upper portion of the south sides. It has a shed roof sloping from east to west. Height of the building at the back is 30'. There are three equal bays running north to south and three equal bays running east to west. It is completely open on the east side. The floor is dirt, no insulation. It is completely unfinished.

We were unable to determine the roof composition or condition. Modifications to this structure are completely dependant on its future use. In its current condition it might serve well as vehicle storage.

C.6.b. Structural

This is a high pole barn type structure. There is one open face, full wall infill on two sides, and partial wall infill on the third side. The roof is supported on 8-10" diameter log columns buried in the earth. The roof structure is 2x12 rafters at 16" O.C. supported by 4-2x12 built-up beams running post to post. The rafters span 15' max, the built-up beams 24' max. The roof rafters are adequate. The built-up beams are severely undersized. The building has questionable overall stability for lateral loading dependant on the attachment of the side walls and the condition of the buried posts.

C.6.c. Mechanical

There is no HVAC system in this building.

C.6.d. Plumbing

There are no plumbing systems in this building.

C.6.e. Fire Protection System

There is no fire protection system in this building.

C.6.f. Electrical

The electrical service for the Lumberjack Shed originates from transformer B5 located on a pole mounted transformer platform to the south of the building. This transformer is fed from the 2400-volt distribution system. This transformer feeds a 200 amp, 120/240 volt, 1-phase meter main panel with a 200 amp main circuit breaker. The panel has space for 24 circuits, but the majority of the branch circuit breakers have been removed. Energy consumption for the structure is monitored from a KWH meter.

At the time of the assessment, transformer B5 was not operational, so the structure is currently without power.

Lighting in the facility consists of 3 HID high-bay fixtures, which are switched at the panel. These fixtures appear to be in fair condition.

Overall, the electrical distribution system in the facility appears to be in fair condition. However, the following deficiencies were noted:

- Transformer B5 is not operational.
- The majority of the branch circuit breakers have been removed from the panelboard.

C.7. ELECTRIC PUMP HOUSE

C.7.a. Architectural

This one-story metal building has a lean-to addition to the west. The roof is metal, sloped with the ridge running north to south. There are three hatches on the west slope for removal of electric pump motors and one roof hatch on the east slope. It appears to have a vented attic.

Windows are steel framed with single-pane glazing.

Ceiling is unfinished insulation held in place by a suspended ceiling grid and chicken wire. Insulation is foil-backed, fiberglass. Interior wall panels are steel as part of the prefab metal building. The lean-to addition is finished with painted plywood.

The area around the building needs to be re-graded for positive drainage. Weeds need to be cleared from around the building. Stoops need to be installed at the north and south doors.

One broken windowpane on the south facade (12"x12") needs to be replaced. The north door should also be replaced as it does not close or latch.

Roof hatches need to be re-secured.

C.7.b. Structural

The structure of this building was not accessible. There were no areas of visible sag or settlement and nothing to indicate any other structural issues.

C.7.c. Mechanical

Heating is accomplished in this building by two 10 kW electric unit heaters with wall thermostats. However, there is no ventilation in the building. There are existing roof penetrations that appear to remain from previous roof ventilators. Lack of ventilation in summertime months may shorten equipment life.

C.7.d. Plumbing

There are no plumbing systems in this building.

C.7.e. Fire Protection System

Approximately 1/3 of the building is fire-sprinkled with a wet-type system, and this area appears to be that part of the building with framed construction; the rest of the building is constructed of non-combustible materials.

C.7.f. Electrical

The electrical service for the fire pump facility originates from a bank of (3) 250 KVA, pole mounted transformers that are fed from the 2400 volt distribution system. These transformers feed (3) enclosed circuit breakers that act as the service disconnect switches for the facility. Each of these breakers feed a 480 volt 3-phase fire pump inside the facility.

Miscellaneous power and lighting in the facility is fed from a 240/120 volt, pole mounted transformer. This transformer feeds a 200 amp, main circuit breaker load center located inside the facility.

Electrical energy consumption for the facility is monitored from two KWH meters. One meter is connected to the 240/120 volt single phase service and the other meter is connected to the 480 volt service.

The facility has four fire pumps and one pressure maintenance pump. Pump #1 is 200 HP, 480V, 3PH. Pump #2 is 250 HP, 480V, 3PH. Pump #3 is 200HP, 480V, 3PH. The pressure maintenance pump is 2HP, 240V, 1PH.

Pumps #1 and #2 are equipped with NFPA 20 style fire pump controllers and pump #3 is controlled from a standard motor starter located in a MCC section.

The starter within the controller for pump #1 is a reduced voltage starter. This starter appears to be a replacement for the original starter. The starters for pumps #2 and pumps #3 are across the line, full voltage starters.

Overall, the electrical wiring in the facility appears to be in good condition. Power to the pumps were shut off when the assessment of the facility was performed and the pumps were not tested for operation. The following deficiencies were noted:

- Controllers for pumps #1 and #2 are very old, near the end of their useful life, and replacement parts are most likely not available. Therefore, replacement of these controllers should be considered.
- The controller for pump #3 is not a NFPA 20 approved fire pump controller.
- The fire pump circuit breakers located at the transformers are undersized. Per the National Electrical Code, the circuit breakers that serve a fire pump are required to be sized for the locked
- rotor current of the fire pump motor.
- The fire pump system is not monitored from a fire alarm system as required by NFPA 13 and 72.
- The grounding at the service disconnect switches appears to be questionable. No neutral-ground bond was found and the disconnect switches are not bonded together as required by the NEC.
- Emergency lighting needs to be installed as required by NFPA 20.
- The pressure maintenance pump is fed with non-metallic sheath cable laying on the floor. Per the National Electrical Code, this cable is required to have physical protection such as conduit.

C.8. DIESEL FIRE PUMP HOUSE

C.8.a. Architectural

This is a one-story, one-room concrete structure. The door is wood, set in a metal frame. The interior is all concrete; the ceiling is concrete and walls are painted concrete. The roof is a 7 " concrete slab that slopes from east to west. There is a roof hatch for the purpose of removing equipment as needed.

The wood door is weathered and should be painted.

Vent stack out to the west should be reinstalled and re-caulked. There is an opening in the east face that should be repaired, it is covered with weathered plywood and should be replaced (approx. 18"x18").

The metal catwalk on the northwest corner of the building is overgrown with vegetation. This should be cleared away and the catwalk painted.

Southeast corner of the roof slab is cracked off.. This should be repaired.

C.8.b. Structural
The structure of this building, including the roof, is cast in place concrete. There is one steel beam cast into the slab at the mid-span of the roof. There is one visible cold joint in the original wall pour. There are no signs of significant structural issues with this structure.

C.8.c. Mechanical
Heating for this building is accomplished with a gas cabinet unit heater. However, it is not a sealed-combustion unit and there is no combustion air introduced into the space.

When the diesel pump is operational, there is inadequate ventilation for the engine. There is an 18x18 louver opening at the door, but there is a 20x20 opening in the wall that is blocked off. This opening should be re-instated with a louver.

C.8.d. Plumbing
There are no plumbing systems in this building.

C.8.e. Fire Protection System
There is no fire protection system in this building, however the building is constructed of non-combustible materials.

C.8.f. Electrical
The electrical service for the diesel fire pump building originates at a 15 KVA, 1-phase, pole mounted transformer that is fed from the 2400 volt distribution systems. This transformer feeds (2) 20 amp, 2-pole, disconnect switches within the building.

Branch circuit wiring within the building consists of copper conductors concealed in conduit. These circuits are fed directly from the service disconnect switches. The facility does not have a branch circuit panelboard or load center.

The wiring in the facility is in poor condition and the following deficiencies were noted:

- The service disconnect switches and branch circuit wiring are in disrepair, have exceeded their useful life, and do not comply with the National Electrical Code. Complete replacement is recommended.
- The electrical service does not appear to be properly grounded. No neutral to ground bond was found. No ground rods were found.
- Emergency lighting needs to be repaired to working order or replaced.
- The fire pump system is not monitored by a fire alarm system as required by NFPA 13 and 72.

- At the transformer pole and on the exterior of the building, there are numerous conductors that have been abandoned. These conductors present a safety hazard and should be removed.

C.9. LOG TRUCK SCALE

C.9.a. Architectural

This small, two-story wood-framed building is clad with T-111 plywood siding. All windows are wood-frame with insulated glazing, except for two large plate glass windows, one on the east and one on the west. There are two doors on the north facade and both are wood. The roof is a low-slope metal roof, sloping west to east.

The stair to the second floor is on the outside and is steel.

The interiors of both levels are the same. Floors are VAT and walls and ceilings are painted plywood.

Entire building needs painting. Fascias need to be sanded and painted. There is no corner trim - this needs to be added. The stair to the second floor needs painting. The rail is noncompliant and needs modification depending on the proposed future use. There is an opening to the north under the window for air conditioning. The air conditioner has been removed and the opening should be patched.

Interior floor tile needs to be replaced; otherwise the interior is generally in good condition. The door hardware on the upper door is missing and needs to be replaced. Neither level is accessible; depending on future use, this may have to be addressed. Grading around the building is adequate. The roof is not visible, nor accessible.

C.9.b. Structural

This is a two story framed building. The roof appeared to be framed with 2x12s at 16" O.C. There was no visible sagging or cracking and no reason to believe there are any major structural issues.

C.9.c. Mechanical

First Floor:
This floor is heated via a Cadet electric baseboard heater and a 5 kW electric unit heater. The unit heater has a temperature sensing bulb hanging loose; for proper control, a wall thermostat should be installed. There is no air conditioning on this level.

Second Floor:
This floor is heated via a Cadet electric baseboard heater. There is also a Kelvinator window air conditioner but it appears to be non-functional and should be replaced.

C.9.d. Plumbing

There are no plumbing systems in this building.

C.9.e. Fire Protection System

There are no fire protection systems in this building.

C.9.f. Electrical

The electrical service for the truck scale facility originates from a pole mounted 15 KVA, 1-phase transformer that is fed from the 2400 volt distribution system. This transformer feeds a 240/120 volt, 1-phase meter panel.

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Branch circuits in the facility consist of copper conductors concealed in conduit. These circuits are fed from a 240/120 volt, 1-phase load center. This load center is fed from a 200 amp circuit breaker located at the meter panel at the transformer pole.

Lighting in the facility primarily consists of fluorescent fixtures. The exterior of the facility has HID fixtures.

Overall the electrical within the facility is in fair condition. The following is a list of deficiencies noted:

- The load center is in very poor condition and replacement should be considered. The front of the load center is blocked by the scale components. Per the National Electrical Code, 3 feet of working clearance is required in front of the load center.
- Wiring for a window mounted AC unit and other components within the building are wired with a S.0 cord. This wiring method does not conform to the National Electrical Code.
- The facility does not appear to be properly grounded. No neutral to ground bond was found.

10. PLYWOOD PLANT

10.a. Architectural

This large, one-story building comprises approximately 250,000 s.f. It originally served as a manufacturing plant and is post and beam construction with 2' lapped, plywood siding (on all but the east grade). The roof is a low-slope roof with an asphalt membrane (approx. 24' high at the eaves and 28' high at the ridge.) The north end of the plant has mezzanine office and support areas. There are various appendages to the north and east sides, all in varying stages of neglect. The floor is a concrete slab on grade.

The exterior of the building needs to be completely replaced. All sliding warehouse doors, man-doors, and windows need to be replaced.

The majority of the perimeter area of the building is paved in asphalt. Grading around the building is essential flat.

The roof has multiple penetrations for vents and roof curbs and is poor condition. All the curb flashings need to be replaced. Rooftop units and other equipment have been scavenged resulting in exposed and damaged areas. There are still several piles of debris on the roof. Some roof sheathing is completely unprotected and exposed to the elements. There is evidence of fire damage to one portion of the roof structure that requires further investigation. At least six ladders need safety cages. A complete new roof is needed. When this is done, the condition of the roof sheathing should be verified.

10.b. Structural

The plywood plant is the largest facility on site. It is comprised of a main wood structured building and several additions of steel and wood. The overall structure shows signs of heavy use and some lack of general maintenance. Overall, the structure appeared to be in generally good condition, although isolated areas showed signs of greater distress. The main plant is arranged on 40'x 60' bays. Each bay corner is supported by a double 12x12 heavy timber column. Girders, spanning the 40' direction are 12x44 glulams. Beams, spanning the 60' direction at 20' spacing, are 12x28 glulams. Infill rafters are 2x12s @ 24" o.c. No grading stamps were visible on the glulam beams. Columns and rafters were covered with

too much dirt to make any kind of visual determination of species, but areas that were visible appeared to be mixed species – probably spruce, pine, and fir. The main building had no internal bracing to resist lateral loads.

My review consisted primarily of a gravity analysis of the roof system. The building is uninsulated, and historically generated significant amounts of heat from building processes. Currently the building is unheated. I have assumed that any future owner using part or all of the building would want to install some level of insulation. Thus, the building currently and in the future will retain a much higher amount of snow than might have been the case during the plant operation. I have checked the capacity for the full roof snow load in the area. In its totally unheated state, and due to the extremely large roof area, it is possible that the roof will experience full ground snow load, which is approximately 10% higher, as well as localized drifting.

A typical bay of the wood framed area was reviewed. Analysis reveals the roof rafters and beams (12x28 G.L.s) to be extremely undersized. Girders (12x44 G.L.s) are adequate for bending, although undersized in shear. Columns are marginal depending on what species and grade of wood is used. Connections of beams to girders are extremely questionable. Unless there is additional capacity in a "hidden" or out of view part of the connection, these connections are extremely unsafe. Roof sheathing may be damaged beyond repair in many areas where the roofing has failed. Overall, the roof is unsafe for snow loads which may be expected. Although design snow load is generally based on a 100 year snow load, the roof is so significantly undersized in several critical areas that a much smaller event may cause localized failure or total collapse. Wood has a high factor of safety in design values and tends to take much higher loads for a short period, but overstresses seen in this analysis may be high enough to cause immediate and sudden failure. Of particular concern is the connections of the beams to the girders, which may be prone to a more sudden failure mode. Because of the severity of the gravity issues, I did not perform a full lateral analysis of this structure. A generalized review would indicate that the building would not be adequate for modern seismic design. I feel this could be remedied fairly inexpensively by adding some internal bracing or shear walls. The gravity upgrades are not so easily remedied and probably extensive enough where it would be more realistic to consider salvage options. Compounding this issue are bays that have been modified or damaged. Several bays above the old presses showed significant signs of burn and other degradation. Other areas have been modified or roof structure damaged. Overall, the roof structure of this building should be considered unsafe with any significant snow loading.

Additions were not analyzed in depth. My assumption would be that if the main area of the plywood building is not available for re-use, these additions would not be considered for re-use as freestanding structures. In the bays inspected, the general condition was adequate, but there were signs of rusting and corrosion. Drawings were recovered for the structure in some of these areas, which would allow for more in-depth analysis if required in the future.

C.10.c. Mechanical

This building used to be heated via a campus steam distribution system that ceased operation after a fire in the early 1990's. Since then, the majority of the building has apparently not been heated. There is little of the existing HVAC infrastructure inside the building that is salvageable. The general ventilation fans, steam piping and steam heating equipment have reached the end of their useful life.

There are three rooftop units (Lennox, Rheem & Ruud models) at the west end of the building that are worth saving: two 5-ton units (one with electric heat) and a 2-ton (with electric heat). These units serve the west office spaces. However, the air distribution system is inadequate and should be redesigned and replaced. The balance of the heating needs for the east office spaces is met with baseboard electric

heaters. The west office area is heated with an electric wall heater in poor condition that should be replaced. The two adjacent west bathrooms have electric wall heaters in fair condition.

There is an existing concrete pad for a propane tank outside the plant but the tank is missing. Propane heat from some source would be the most feasible heating solution for this building. It should be noted that the building is not insulated so it would be extremely costly at this time to heat it without architectural modifications, given the footprint of five acres.

There is also a myriad of abandoned flues and vents that are in poor condition and should be replaced if a similar building usage is planned.

C.10.d. Plumbing
There is a 3" domestic water connection that apparently originates from the City of Libby. This water serves at least the west end of the plywood plant in the area of the offices and bathrooms. There are also bathrooms at the east end of the plant; the water source for these bathrooms is unknown at this time and may or may not be potable.

C.10.e. Fire Protection System
This building is 100% fire sprinkled with a dry-type system via six valve huts on the exterior of the building. Each of the typical huts contains an 8" wet main from the campus fire protection system as well as a connection for compressed air, except for one which has a 4" main. However, there is no evidence of air compressors either in the huts or inside the building. In one valve hut, there are two 2-1/2" water connections for a cyclone and sander system that no longer exists.

The fire protection system also includes several roof huts as well that originate from the main valve huts. These huts are typically connected with flexible fire hoses but appear to be manually operated only.

C.10.f. Electrical
The plywood plant is fed from four separate 4160-volt feeders from the substation located near the finger joint plant. These feeders feed four separate unit substations located inside the plywood plant.

Unit substation #1 is located in the south west corner of the plant. It contains a 600 amp, 4160-volt main switch, a 2000 KVA, 4160-480/277 volt step down transformer, and eight 800 amp 480/277-volt draw-out distribution circuit breakers. This substation appears to be less than 10 years old.

Unit substation #2 is located in the north west corner of the plant. It contains a 4160-volt main switch, a 1500 KVA, 4160-480/277 volt step down transformer, and eight 600 amp 480/277-volt draw-out distribution circuit breakers. This substation appears to be installed in the late 1960's.

Unit substation #3 is centrally located on north side of the plant. It contains a 4160-volt main switch, a 1500 KVA, 4160-480/277 volt step down transformer, and eight 480/277-volt draw-out distribution circuit breakers. This substation appears to be installed in the late 1960's.

Unit substation #4 is located in the north east corner of the plant. It contains a 4160-volt main switch, a 1000 KVA, 4160-480/277 volt step down transformer, and three 800 amp 480/277-volt draw-out distribution circuit breakers. This substation is in poor condition and appears to be installed in the late 1960's.

The plywood plant is also fed from a separate 2400-volt circuit from the electrical service located in the Town Pump parking lot. This feeder feeds a 2400-480/277 volt step down transformer located near unit

substation #3. This transformer feeds a lighting panel that serves one light fixture in each bay of the facility.

Branch circuits in the facility are feed from various branch circuit panelboards and motor control centers located throughout the facility.

The lighting in the facility consists of high-bay HID fixtures. These fixtures appear to be in fair condition. However, operation of these fixtures was not observed during the assessment because power to the facility was shut off.

Overall, the electrical equipment and wiring in the facility is in poor condition. The following deficiencies were noted:

- The motor control centers are in very poor condition. The majority of the motor starters have been removed and due to the age of the equipment, replacement parts are most likely not available.
- Three out of the four unit substations are nearly 40 years old and at the end of their useful life. Replacement parts for these substations are most likely not available. Unit substation #1 appears to be in good condition and could be retained for reuse.
- It is recommended that the majority of the equipment and wiring throughout the facility be replaced due to the age and condition. The existing substations maybe reconditioned for reuse. However, reconditioning these substations may exceed the cost of installing new substations.
- The electrical service is not metered.

D. MEDIUM VOLTAGE POWER DISTRIBUTION SYSTEM

The medium voltage power distribution throughout the site consists of a complex network of overhead lines and overhead transformers. Power throughout the site is distributed with both a 4160 volt wey system and a 2400 volt delta system.

Two power sources feed the site distribution system. Source #1 is a 12.47 KV overhead feed from Flathead Electric Co-op. This line crosses Highway 2 and enters the site from the south near the new Town Pump facility. The Town Pump parking lot contains a primary meter package and a bank of (3) 333 KVA transformers that step the 12.47 KV line down to 2400 volts. These transformers feed a 2400-volt delta overhead distribution system. The Lincoln County Port Authority owns all lines and equipment down stream of the primary meter package. The 2400-volt distribution system feeds all buildings except for the finger joint plant, plywood plant, and steam plant.

Source #2 originates at the Flathead Electric Co-op substation located several miles from the site. A 33 KV line exits this substation and feeds a switchyard nearby the substation. This switchyard contains a primary meter package and cutout switch. The Port Authority owns this switch and all lines and equipment downstream of this switch. This switch feeds an overhead 33 KV line that crosses the Kootenai River and enters the old mill site from the north. This line feeds a substation located east of the Finger Joint Plant. Inside of this substation, the 33KV is stepped down to 4160 volts with an oil filled 10,000 KVA transformer. This transformer feeds a small metal building that contains a 4160 volt metal clad switchgear unit. This switchgear has three power circuit breakers that feed the finger joint plant, the plywood plant, and the steam plant.

The overhead lines are supported from wood poles. Although not every wood pole on the site was evaluated during the assessment, the poles that were observed appear to be in good condition. Most of the

poles are very tall and provide excellent clearance for the overhead lines. Several of the poles associated with the 33KV line that crosses the river were new in 1998.

As indicated above, the medium voltage distribution system is metered at the two sources provided by Flathead Electric Co-op. Energy consumption is metered at each of these sources with a primary side meter package that records KWH, KW, and KVAR. These meters are owned and maintained by Flathead Electric Co-op. In addition to the primary meters, several of the buildings have KWH meters located at the electrical service to the building. The meters at the buildings are owned and maintained by the Port Authority.

Overall the medium voltage power distribution is in poor condition. The following deficiencies were noted during the assessment:

- The 4160-volt metal clad switchgear appears to be nearly 40 years old and is at the end of its useful life. Replacement should be considered.
- The south end of the floor slab in the switchgear room has settled approx. 6 inches. This settlement is placing a large amount of strain on the bussing inside of the switchgear.
- Many of the overhead transformer banks are mounted on a pole platform that is approx. 6ft above the ground. Some of the transformers are placed directly on the ground on a concrete pad. These banks have exposed medium voltage conductors that present a serious safety hazard. Per the National Electrical Safety Code, these transformers are required to be mounted 9ft above the ground and fenced with an 7ft high fence that has 10ft of clearance from the transformer. It is recommended that these safety violations be corrected immediately.
- The substation yard that contains the 10,000 KVA step down transformer is in very poor condition. Over the years, approx. 10" of sawdust has accumulated on the ground and the yard has overgrown with weeds. Substations of this type are required to have a non-combustible, vegetation free, low resistance surface.
- The 2400-volt distribution system is not reliable. This system fails whenever the site experiences a moderate wind and the overhead lines touch each other. Most of the failures have occurred in the long sagging line south of the finger joint plant.
- The 33KV switchyard located near the Flathead Electric Co-op substation is in need of maintenance. This yard is overgrown with weeds and the new chain link fence does not appear to be grounded. The gate to the yard is not locked.
- The 33KV line has several locations where tree branches are in close proximity and need to be trimmed.
- Not all of the buildings have electrical meters. The buildings that have meters only have meters the will record the KWH consumption. To accurately divide up the Flathead Electric Co-op power bill, each tenant will need to have a meter that records KWH, KW, and KVAR installed.

Due to the poor condition of the distribution system, the poor reliability, and the difficulties of sub-metering each tenant, it is recommended that the power for any new buildings that are constructed on site be supplied from a new underground source provided by Flathead Electric Co-op. This will allow the existing overhead distribution system to be completely removed as the site is developed.

If the Port Authority decides to retain ownership of the overhead distribution system, it is recommended that a detailed survey of the system be performed. It is also recommended that a site plan and one-line diagram of the entire system be developed.